**Enhancing partnership among Africa RISING, NAFAKA and TUBORESHE CHAKULA Programs for fast tracking delivery and scaling of agricultural technologies in Tanzania**

**Report on Project Team Participatory Learning visit at Sabilo and Seloto Villages, Babati District (19th April 2016).**

**Purpose:**

1. Monitor the implementation of AR technologies demo plots
2. Meeting with District level partners - DAICO and village governments
3. Exchange of knowledge, experiences and lessons among farmers in Seloto and Sabilo villages and the project team
4. Participatory assessment of ongoing field activities

**Preamble**

A team of AR-Scaling project composed of 14 scientists (11 Male, 3 Female) from IITA, CIAT, Agricultural Research Institute (ARI)-Hombolo, ARI Chollima/Dakawa, ARI Selian, ICRAF, CIMMYT, as well as seed producers (Meru Agro, Aminata) participated in a learning visit in two villages in Babati (Seloto and Sabilo). Also present were 2 district staff and 7 village extension officers from babati district involved in the project. To also enhance cross-learning among farmers, 22 farmers from Sabilo and 24 farmers from Seloto, all involved in the projects mother or baby trials participated. The visit was a follow-up on the project team meeting to monitor progress of activities. The village governments for the two villages were appraised on the purpose of the visit and ongoing activities. This learning visit was hosted by the International Centre for Tropical Agriculture (CIAT) which is the implementing partner for project activities in Babati District.



Figure 1. Project signboard at the site in Seloto village (Credit: Haroon Sseguya/IITA)





Figure 2: Group discussions during the learning visit in Sabilo (top) and Seloto (lower), Babati District (Credit: Job Kihara/CIAT)

**Field visit at Seloto Village:**

The meeting started with a few welcome remarks from Dr. Job Kihara (CIAT) who also introduced the team of scientists and extension staff. Afterwards, demonstration of ongoing work at one of the demo plots in Seloto village at the farm of Mr. Anthony Leonse was conducted. In this farm, promising agronomic technologies are demonstrated spanning over four years of Africa RISING research. All the participants observed maize fields with different treatments. The performance of maize under control plot and farmers practice where no fertilizer had been applied was clearly much lower than where DAP and Minjingu mazao fertilizers (both P sources) had been applied. Guided by Job Kihara and Mr. Yangole Luhenda(ARI Selian), the visitors appreciated the integrated science being undertaken at the site which includes soil water measurements using pre-installed access tubes, soil runoff estimation from the individual plots, inter-spaced basins for insitu runoff collection, improved Napier grass accessions planted between the main blocks in the farm, newly germinated relay-cropped desmodium, lablab and cowpea for twin objectives of soil protection (enhanced soil cover under maize-pigeon pea system) and forage/nutrition. Farmers picked one representative maize cob from each of the four main plots (control, farmers practice, DAP and Minjingu mazao) that became part of a discussion of the group. The pigeon pea intercrop with maize confers additional benefits of nitrogen fixation, increase farmers income from crop diversification; the stalks provide fodder and firewood. Other good agronomic practices demonstrated at the site include line planting, planting two seeds per hole and spacing 50X90cm.



Figure 3: Dr. Job Kihara showing participants the representative maize cobs from the maize plots (credit: Inot Ibrahim/CIAT)

 Figure 4. Layout of the demonstration trial visited in Seloto.

Automatic weather stations

The participants were also introduced to an automatic weather station installed adjacent to the demonstration plot that records daily weather for the area. Job mentioned that such weather stations have been installed in all the AR sites in Babati except for the two new villages (Ayamango and Kash). The data will be used to model crop growth and soil losses under the different systems implemented in this site.

  
Figure 5: Weather and soil management information being shared with participants. The last photo (right hand bottom) shows the weather station (Credit: Inot Ibrahim/CIAT)

Before heading to the next village, Dr. Haroon Sseguya (IITA), who is also the coordinator of the Africa RISING-NAFAKA Scaling project, highlighted the goals of the project. Using an analogy, he explained to participants that it is better for someone to show you how to fish rather than giving you fish. This is because the former gives life-long skills that make one survive independently. In this regard he informed reiterated that the Africa RISING-NAFAKA project aims at transferring best-bet technologies to farmers so that they can improve their yields and ultimately, incomes and well-being. He requested the farmers to be good ambassadors by disseminating the technologies to as many farmers as possible for wider adoption.



Figure 6: Dr. Haroon Sseguya, the project coordinator, talking to farmers and scientists during the visit (Credit: African Mushi/IITA)

**Visit at Sabilo Village**

The meeting at Sabilo started with a demonstration of ongoing work at the farm owned by Mr. Petro Lohay., Four maize varieties are being demonstrated (Meru HB 515, Meru HB 513, SC 627 and ZAM) each with and without both DAP and Minjingu Mazao fertilizers. The team appreciated the huge differences observed in crop performance with and without fertilizer application. Figure 7 b shows the differences in crop performance taken one month before the visit. As such and in the group discussion, several farmers indicated by show of hands that they are now willing to even buy fertilizers themselves for their fields. It should be noted that at the beginning of the project, farmers were hesitant to use fertilizers; even allowing the scientists to use their land to demonstrate the same. This was not until farmers such as Petro accepted to have part of their land used for the demonstrations. In addition, farmers are in agreement that besides animal manure being scarce, it is becoming more expensive than mineral fertilizers but this needs to be ascertained through some economic analyses. Another note by the farmers was that Minjingu mazao fertilizer does not in many cases perform well compared to DAP. They were informed that this can occur especially if moisture stress is present but also that improvements have now been made with its new successor, Nafaka Plus which will be introduced in the coming season. Further, farmers were informed that, due to the relatively lower cost of Minjingu mazao, it may result in higher returns on investment compared to DAP, something that both farmers and scientists in Babati will establish at the end of the season through participatory economic assessment.



Figure 7: Lead farmer Petro Lohay of sabilo in his Demo field. Right is crop with fertilizer. Left is crop without fertilizer [credit: Job Kihara/CIAT).

**Key lessons learnt by farmers during the visits.**

* Both demo plots demonstrated the importance of application of fertilizer to enhance maize productivity. The two demo sites demonstrated clear differences in performance/yields of the maize crops with and without fertilizer.
* Farmers from Sabilo village appreciated the soil and water conservation technologies that are demonstrated in Seloto village demo plot. They requested for the same technologies to be implemented in their village since they also experience soil erosion. In addition, one farmer was curious to know how the information from gadgets including runoff detectors will be used and whether the same study can be done in their village.
* Job explained that the information obtained from the measurements on soil traps and run-off detectors already installed will be used to inform the scientists on the magnitude of run-off and soil loss in the area so that appropriate mitigative measures can be recommended to all farmers in the District. Therefore even the Sabilo farmers will benefit from the results of the experiments.
* One farmer noted that DAP fertilizer had better results than Minjingu Mazao in Sabilo village. Job explained that the release of Minjingu Mazao can delay if the soil moisture is not enough during the planting season. This effect is most evident when seedlings are young but it fades as the crop matures. Job noted that the difference between Minjingu and DAP can be compensated by the fact that Minjingu is relatively cheaper.
* Farmers appreciated the soil conservation measures using cut-off drains with a row of fodder crops in Seloto village. Despite controlling soil erosion the fodder crops also provide highly nutritious fodder for the livestock. Farmers noted that farmyard manure in Seloto village is now costly than fertilizers due to high demand. Dr. Kihara informed the farmers that the farmyard manure has advantage that its application improve the soil water holding capacity. However it decompose slowly unlike the inorganic fertilizers that are readily absorbed after application.





Figure 8: Farmers sharing their impressions of the demonstration activities (Credit: Haroon Sseguya/ IITA)

* Mr. Alfred Petro, a farmer in Seloto informed the scientists that rainfall ranked highly than fertilizer application in influencing maize yields in the village. Job emphasized the need for soil conservation so that plants can access maximum moisture. He hinted that surface runoff mainly removes Nitrogen compared to Phosphorous.
* The need for farmers to plough across the slope rather than along the slope to minimize soil erosion was highlighted
* One farmer sought advice why her maize seeds had poor germination during 2015 season when she used the Minjingu fertilizer. Job and Swai (a soil scientist from ARI Hombolo) explained that this could be as a result of late or low rainfall during that season. If there is inadequate moisture in the soil at planting stage, basal fertilizer can cause desiccation of seeds.
* Dr. Anthony Kimaro (ICRAF) emphasized that failure to apply fertilizers would not help much even if farmers applied other GAPs. He called for proper application of fertilizers. This entails using the right fertilizer at the right time and applying the recommended doses. Both overdose and under dose of fertilizers are detrimental to the soils. The DAP and Minjingu fertilizers have different recommended rates. The knowledge shared should be shared with other farmers for wider adoption.
* Farmers reported instances of maize infestation by suspected MNLD virus. Dr. Bright Jumbo (CIMMYT) highlighted that MNLD is an emerging serious threat to maize production in East Africa. Bright advised farmers that planting certified seeds and early planting is the best available solution to MNLD infestation although more research is undertaken to produce maize varieties that can tolerate MNLD. He further informed farmers that some varieties introduced by the project such as Meru HB515 have high tolerance to MNLD. He emphasized that farmers need to identify the seed varieties planted so that scientists can be able to follow-up.
* Paulo a farmer in Sabilo asked why Pannar seed was not demonstrated. The farmers were informed that varieties are selected based on their recommended agro-ecologies and time to maturity.
* Farmers were encouraged to set aside land for demo plots in accessible locations -preferably close to roads such that passers-by can also observe and learn. Mr Yangole pointed out that although the demo plot at Sabilo has excellent results worth emulation by many, it was rather hidden. Farmers agreed to consider accessibility when setting up baby demos in the next season.
* Visiting scientists learnt the use of lysimeters in leaching studies, some of whom heard of these for the first time.
* Farmers emphasized that seed and other inputs should be delivered early, not only by this project but also by agro input suppliers (around late October) .The scientists and seed companies noted this concern and pledged to improve the logistical issues during the planting season.
* Dr Sophia Kashenge-Killenga from ARI Chollima/Dakawa was concerned by the relatively low participation of women in the event. She emphasized that women would be one of the highest beneficiaries of the innovative technologies and therefore their wide participation is of vital importance.
* The representative of the DAICO, Mr. Edgar Lyakurwa, advised farmers that they should aspire to be entrepreneurs (doing farming as a business), and not being subsistence farmers. This way, they will be able to get enough food, as well as improved incomes and livelihoods. He advised the farmers to accept positive changes to improve their farming business.



Figure 9: Dr. Sophia Kashenge-Killenga, the leader of the rice component for the project giving closing remarks at the end of the two visits (Credit: African Mushi/IITA).

**Follow-up issues**

* Harvesting the crops to compare yields from different treatments after maturity
* Holding field days
* Training on post-harvest technologies to improve storage and the quality of the harvested grains.

**List of Participants:**

Scientists

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| --- | --- | --- | --- |
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Farmers

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| --- | --- | --- | --- |
| **S/N** | **NAMES** | **GENDER** | **VILLAGE** |
|  | Emmanuel Vicent | M | Seloto |
|  | Octavian Fiso | M | Seloto |
|  | Paulo Ingi | M | Seloto |
|  | Martin Leonce | M | Seloto |
|  | Patrice Yake | M | Seloto |
|  | Daniel Male | M | Seloto |
|  | Anthony Leonce | M | Seloto |
|  | Daniel Baha | M | Seloto |
|  | Patrice Sisti | M | Seloto |
|  | Francis Michael | M | Seloto |
|  | Petro Kalisti | M | Seloto |
|  | Adolf Petro | M | Seloto |
|  | Asteri Gabriel | M | Seloto |
|  | Paustin Patrice | M | Seloto |
|  | Paustin Gabriel | M | Seloto |
|  | Philipo Michael | M | Seloto |
|  | Astery H. Mmao | M | Seloto |
|  | Mathias Dominick | M | Seloto |
|  | Pius Mulki Tsere | M | Seloto |
|  | Blasi John Homa | M | Seloto |
|  | Adeline Dodi | F | Seloto |
|  | Wilfred Wilbrod | M | Seloto |
|  | Deonice Mara | M | Seloto |
|  | Marko Julius | M | Sabilo |
|  | Paulo Yawaki | M | Sabilo |
|  | Samwel Peter | M | Sabilo |
|  | Sadikia Bombo | M | Sabilo |
|  | John petro | M | Sabilo |
|  | Adelina Charles | F | Sabilo |
|  | Baltazari Petro | M | Sabilo |
|  | John Paulo | M | Seloto |
|  | William Israel | M | Seloto |
|  | Paschal N’gadi | M | Seloto |
|  | Joseph Migire | M | Sabilo |
|  | Sinorina Paulo | F | Sabilo |
|  | Paulo Lelzaki | M | Sabilo |
|  | Elizabeth Mihindi | F | Sabilo |
|  | Paschal Ami | M | Sabilo |
|  | Victoria Petro | F | Sabilo |
|  | Alfred Gwandu | M | Sabilo |
|  | Simon sikai | M | Sabilo |
|  | Phausta Panga | F | Sabilo |
|  | Theresia Bohay | F | Sabilo |

Babati district extension personnel

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| --- | --- | --- | --- |
| **S/N** | **NAMES** | **Gender** | **POSITION** |
|  | Ezekia J. Jacob | M | Agricultural field Officer (AFO) 1 |
|  | Patrick Amo | M | Livestock FO 1 |
|  | Judith E. Manzi | F | Principal AFO 1 (PAFO) |
|  | Adelta Macha | F | PAFO 1 |
|  | Jackson Mbwambo | M | PAFO 1 |
|  | Ezekiel N. Mngumi | M | AFO 1 |
|  | Paschal M. Mahetu | M | AFO II |
|  | Masamu J. Jonas | M | Agricultural Officer (AO) |
|  | Edgar Lyakurwa | M | Senior AO |
|  | Elda M. Mary | F | AFO II |